# Three new species of *Acolastus* Gerstaecker in the *Acolastus callosus* species-group

(Coleoptera: Chrysomelidae: Cryptocephalinae)

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ABSTRACT. Three new species in the *Acolastus callosus* species-group are described, i. e. *Acolastus kantneri* n. sp. from Zambia and Malawi, *Acolastus varioplagiatus* n. sp. from Zambia and Zimbabwe, and *Acolastus callosocarinatus* n. sp., the latter with cinnamon-brown elytra and pronotum from Malawi. The male genitalia are illustrated. New records for *A. callosus* Gerstaecker, 1855, *A. personatus* Schöller, 2000 and *A. pardalis* Schöller, 2000 are listed. A determination key and a distribution map is given for the nine species of the *Acolastus callosus* species-group. Lectotypes are designated for *Acolastus nigroplagiatus* Jacoby, 1898, *Acolastus simonsi* Baly, 1877 and *Thelyterotarsus fausti* Weise, 1882.

Key words: entomology, taxonomy, Coleoptera, Chrysomelidae, Cryptocephalinae, Pachybrachina, new species, *Acolastus*, Afrotropical Region.

#### INTRODUCTION

One hundred twenty four species of *Acolastus* have been described from the Palaearctic, Afrotropical and Oriental regions. In the *Acolastus callosus* species-group are seven species from Eastern and Southern Africa, including the generic type species *Acolastus callosus* Gerstaecker, 1855 (Schöller 2000). In this study, additional three species from the *Acolastus callosus* species-group are described, and a determination key and a distribution map is given.

#### MATERIALS AND METHODS

The eye length was measured in lateral view, the interocular space in frontal view. Included in this study are specimens located in the following collections. FKPC =

Frantisek Kantner personal Collection, Lipí u Ceskych Budejovic, Czech Republic; JBPC = Jan Bezděk personal Collection, Budweis, Czech Republic; MESC = Matthias Schöller personal Collection, Berlin, Germany; NMPC = National Museum Prague collection (Jiri Hajek); UHPC = Uwe Heinig personal Collection, Berlin, Germany; ZMHUB = Museum für Naturkunde der Humboldt-Universität, Berlin (J. Frisch, M. Uhlig).

#### RESULTS

#### A. callosus Gerstaecker, 1855

1 Male (Stuttgart) Mozambique, Sofala Province, Gorongosa Reserve, 18./19. XII.2005, P.Schüle leg. Aedeagus as in Figs. 10-11, pronotum as in Fig. 13.

Distribution: Mozambique, Tanzania, Rep. Congo (Fig. 15).

# Acolastus varioplagiatus n. sp. (Figs. 8, 9, 12)

Locus Typicus Zambia, 100 SW of Serenje.

Type specimens

Labeling: Holotypus (male, MZHUB): Zambia, Central Province, 100 SW of Serenje, 7.xii.2002, leg. F. + L. Kantner [white] / (my label) Holotypus *Acolastus varioplagiatus*, des. Matthias Schöller [red] /.

8 Paratypes:

1 male (MESC): Zambia, Central Province, 100 SW of Serenje, 7.xii.2002, leg. F. + L. Kantner; 1 male (FKPC): Zambia, bor. occ., Northwestern Province, Solwezi env., 2.xii.2002, leg. F. + L. Kantner; 1 female (MESC) 2 females (UHPC) Zambia, NC., road Chingola-Solwezi, 2.12.2004, Snizek, Tichý lgt.; 1 male (FKPC) 1 female (MESC): Zimbabwe, mer. occ., Natisa env., 5.XII.1998, 60km S of Bulawayo, lgt. F. Kantner; 1 female (FKPC): Zimbabwe, Matopo N.P., S of Bulawayo, 3.12.-5.12.1998, A. Kudrna JR. lgt. / (all with my label) Paratypus *Acolastus varioplagiatus*, des. Matthias Schöller [red] /.

#### DIAGNOSIS

A yellow species with variable black spots on the elytra and pronotum. It differs from *A. callosus*, in the pronotum being more transverse, length of pronotum about one third of total length, and from all other species in the shape of the aedeagus.

#### DESCRIPTION

**Habitus**: Colour yellow with black spots, puncturation strong and irregular, punctures dark at base, surfaces covered with strong white setae except for the elytra, body cylindrical, size [mm] (mean±SD (max., min., n)): length of male 3.48±0.096

(3.60, 3.40, 4), female 4.20, width of elytra at humeri in male  $1.68\pm0.05$  (1.70, 1.60), female  $2.15\pm0.071$  (2.20, 2.10, 2), length of pronotum in male  $1.08\pm0.029$  (1.10, 1.05), width  $1.55\pm0.05$  (1.60, 1.50) length of pronotum in female 1.35 and width  $2.08\pm0.04$  (2.10, 2.05).

#### Description of holotype (male)

**Head**: Strongly punctate, covered with white setae, more dense at canthus, black with two fused yellow spots on frons which are elevated, otherwise head without irregularities, clypeus and labrum yellow, eyes convex, medium-sized, inner margin emarginate, ration length of eye: minimal distance between upper lobes of eyes 2.4: 1.8, i. e. interocular space 0.75 times eye length, maxillary and labial palpi yellowish brown, last segment of maxillary palp feebly expanded, mandibles simple, black with yellow tip; antennae filiform, short, surpassing basal margin of pronotum by two segments, antenna yellowish brown, antennal segment 1 dorsally black, segments 5-7 partly darkened, segments 8-11 dark brown, 5-11 dilated.

Thorax: Pronotum transverse (Fig. 12), length 0.7 times width, in dorsal view, pronotum slightly narrowing towards apical margin, hind margin pubescent with white setae, surface of pronotum matt, diffusely punctate on disk, puncturation coarse and very dense, interstices laterally and on disc elevated, lateral margins yellow, simple, not simultaneously visible from above, straight except for hind edges with tubercles bearing setae, basal margin emarginate opposite to shoulders; puncturation of dark-brown scutellum strong and coarse, covered with white setae; pro- and mesothorax yellow; elytra truncate, glabrous, basal margin swollen, with weakly elevated tooth, with simple side margin, not simultaneously visible from above, punctures completely confused, interstices as wide as diameter of punctures, not elevated except for three abbreviated carinae on apical third, apex of elytra regularly vaulted, epipleura short, not surpassing humerus, with white setae; legs yellow, fore tibia almost straight, fore femur only slightly wider than mid femur, fore- and mid tibia with a short black spur, fore tarsi simple, not wider than mid- and hind tarsi, first tarsomere of hind tarsi shorter than remaining segments combined, last tarsomere short, claws dark brown, claws large and simple.

**Abdomen**: Puncturation of sternites and pygidium dense and coarse, densely covered with white setae, shiny black except for yellow lateral margins of pygidium.

Apex of aedeagus almost straight in lateral view, lateral margin of orificium bulked out, regularly vaulted (Fig. 8), apex of ventral prolongation of aedeagan lobe bifurcate, lateral margins of ventral prolongation straight, bearing short setae, orificium large (Fig. 9), ventral side evenly rounded, length of aedeagus 1.1 mm.

**Female**. Spermatheca simple hook-shaped, with spermathecal duct spiral, ca. 6.5 mm long; dorsal central plate of kotpresse almost square and saddle-shaped. Eyes less convex than in male, interocular space 1.0 times eye length.

**Variability**: The variability in coloration is as follows: the humerus is black and (1) the elytra are yellow except for the black suture (2) basal, subapical spots and lateral spots are present, black or almost vanishing (3) the markings of the pronotum are almost vanishing.

ETYMOLOGY

The name refers to the variability of the black markings on the dorsum.

DISTRIBUTION

Zambia, Zimbabwe (Fig. 15). No information on the biology available.

Note

Lack of material and unknown variability led to the broad concept of *A. callosus* in Schöller (2000), in this publication an illustration (Figs. 41-42) of the aedeagus of *A. varioplagiatus* was given for *A. callosus*.

#### A. pardalis Schöller, 2000

1 male (FKPC): Kenya, Eastern Katutu-Kithioko, 27.xi.1999, Mirek Snizek leg.

#### A. personatus Schöller, 2000

1 male (MESC): Zimbabwe, 50 km S of Bulawayo, Matobo Nat. Park (20°33'S; 28°33'E), 3.-5.xii.1998, lgt. S. Becvar.

# *Acolastus kantneri* n. sp. (Figs. 1, 2, 5, 6, 14)

LOCUS TYPICUS

Zambia, Copperbelt pr. 60 km NW Kapiri Mposhi (13°30'S; 28°15'E).

Type specimens

Labeling: Holotypus (male, NMPC): / ZAMBIA, Copperbelt pr. 60km NW Kapiri Mposhi, 8.xii.2002, F. & L. Kantner [white] / (my label) Holotypus *Acolastus kantneri*, des. Matthias Schöller [red] /.

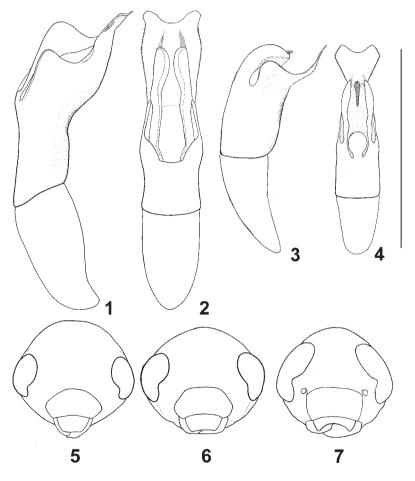
28 paratypes: **Zambia**: 2 males 1 female (MESC) 2 males 2 females (UHPC) NW, 27 km N Kasempa, 10.12.2004, Snizek, Tichý lgt.; 1 female (MESC) 2 males (UHPC) Zambia, NC., road Chingola-Solwezi, 2.12.2004, Snizek, Tichý lgt.; 2 males 1 female (FKPC) Northwestern Province, Solwezi env., 2.xii.2002, leg. F. + L. Kantner; 3 males 1 female (FKPC) 2 males 2 females (MESC) 1 male 2 females (ZMHUB) Copperbelt pr., 80 km W Chingola, 11.xii.2002, leg. F.& L. Kantner; 1 female (FKPC) Copperbelt pr., 60 km NW Kaipiri Mposhi, 8.xii.2002, leg. F.& L. Kantner; 1 male 1 female (FKPC) North Western pr., 130 km W Lufwanyama (12°14′S; 26°46′E), 3.xii. 2002, leg. F.& L. Kantner; **Malawi:** 1 male (JBPC), Nkhotakota env., 2.-3.I.2002, J. Bezdek leg.; 1 male (JBPC), Nkhotakota env., 2.-3.I.2002, M. Obofil leg. / (all with my label) Paratypus *Acolastus kantneri*, des. Matthias Schöller [red] /.

#### Diagnosis

A yellow species with black spots on the elytra and pronotum. It differs from *A. pictus*, *A. justi*, *A. callosus* and *A. personatus* in the wider interocular space (1.4 and 1.1 times eye length in female and male, respectively), and from all other species in the shape of the aedeagus.

#### DESCRIPTION

**Habitus**: Colour yellow with black spots, puncturation strong and irregular, punctures dark at base, surfaces covered with strong white setae except for the elytra, body cylindrical, size [mm] (mean±SD (max., min., n)): length of male 4.03±0.153 (4.25, 3.80, 12), female 4.59±0.138 (4.80, 4.4, 9), width of elytra at humeri in male1.95±0.10



1-7. 1, 2 – Aedeagus *Acolastus kantneri* n. sp.: 1 – lateral, 2 – dorsal; 3, 4 – Aedeagus *A. callosocarinatus* n. sp.: 3 – lateral, 4 – dorsal; 5, 6 – head frontal *A. callosocarinatus* n. sp.: 5 – female, 6 – male; 7 – head frontal *A. callosocarinatus* n. sp.; scale = 1 mm

(2.10, 1.80), female  $2.24\pm0.093$  (2.40, 2.10), length of pronotum in male  $1.28\pm0.069$  (1.35, 1.10), width  $1.93\pm0.07$  (2.00, 1.85) length of pronotum in female  $1.44\pm0.07$  (1.55, 1.35) and width  $2.24\pm0.07$  (2.35, 2.15).

Description of holotype (male):

**Head**: Strongly punctate, covered with white setae, black with two yellow spots on frons which are elevated, otherwise head without irregularities, clypeus and labrum yellow, eyes convex, medium-sized, inner margin emarginate, ration length of eye: minimum distance between upper lobes of eyes 2.7: 3.0, i. e. interocular space 1.1 times eye length (Fig. 6), maxillary and labial palpi yellowish brown, last segment of maxillary palp feebly expanded and darker at apex, mandibles simple, black with yellow tip; antennae filiform, short, surpassing basal margin of pronotum by one segment only, antennal segment 1 black, segments 2-4 light brown, segments 5-11 dilated, dark brown.

Thorax: In dorsal view, pronotum slightly narrowing towards apical margin, hind margin pubescent with white setae, surface of pronotum shining, diffusely punctate on disk, puncturation coarse and very dense, laterally interstices elevated, lateral margins yellow, simple, not simultaneously visible from above, straight except for hind edges with tubercles bearing setae, basal margin emarginate opposite to shoulders; scutellum strongly punctate, covered with white setae; elytra truncate, glabrous, basal margin swollen, with moderately elevated tooth, with simple side margin, not simultaneously visible from above, punctures completely confused, interstices as wide as diameter of punctures, not elevated except for a lateral carina parallel to the side margin, and additional three abbreviated carinae on apical third, apex of elytra regularly vaulted, epipleura short, with white setae under shoulder; legs yellow, fore tibia almost straight, fore femur only slightly wider than mid femur, femur yellow with light brown shade, fore tarsi simple, not wider than mid- and hind tarsi, first tarsomere of hind tarsi shorter than remaining segments combined, last tarsomere short, lobes of last tarsal segment and claws dark brown, claws large and simple.

**Abdomen**: Puncturation of sternites and pygidium dense and coarse, black, densely covered with white setae.

Apex of aedeagus S-shaped in lateral view, lateral margin of orificium bulked out (Fig. 1), apex of ventral prolongation of aedeagan lobe bifurcate, lateral margins of ventral prolongation convex, bearing short setae, orificium large (Fig. 2), ventral side evenly rounded, length of aedeagus 1.4 mm.

**Female**. Spermatheca simple hook-shaped, with spermathecal duct spiral, ca. 2.5 mm long; dorsal central plate of kotpresse almost square and saddle-shaped. Eyes less convex than in male and ratio length of eye: minimum distance between upper lobes of eyes 3.0: 4.2, i-e. interocular space 1.4 times eye length (Fig. 5).

**Variability**: The variability in coloration is illustrated in Fig. 14, the humerus is black and (1) the elytra are bearing six isolated spots, (2) the subapical spots and the lateral spots can be joined (3) the apical margin of the pronotum can be partly black,

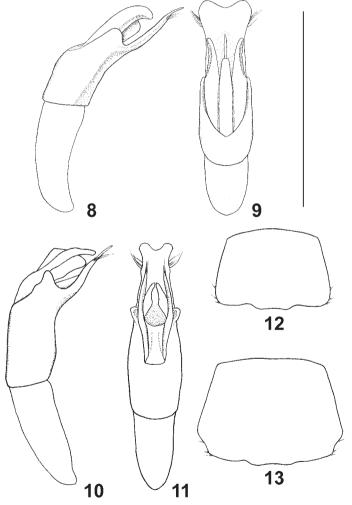
and the subapical spots and the suture can be joined and (4) the apical margin of the pronotum can be completely black, and all spots are enlarged.

#### ETYMOLOGY

The species is dedicated to its collector, the Clytrinae specialist Frantisek Kantner, Budweis.

#### DISTRIBUTION

Zambia, Malawi (Fig. 15). No information on the biology available.



8-13. 8, 9 – Aedeagus *Acolastus varioplagiatus* n. sp.: 1 – lateral, 2 – dorsal; 10, 11 – Aedeagus *A. callosus* Gerstaecker: 10 – lateral, 11 – dorsal; 12, 13 – pronotum dorsal: 12 – *A. varioplagiatus* n. sp. 13 – *A. callosus*; scale = 1 mm

## Acolastus callosocarinatus n. sp.

(Figs. 3, 4, 7)

Locus typicus

Malawi, Salima env. (13°80'S 34°60'E).

Type specimen

Labeling: Holotypus (male, NMPC): / MALAWI centr., Salima env., 5.-6.i.2002, M. Obořil leg. [white] / COLLECTION Jan BEZDĚK Brno Czech Republic [white] / Holotypus *Acolastus callosocarinatus* des. Matthias Schöller [red] /.

#### DIAGNOSIS

A cinnamon-brown species with two complete yellow carinae parallel to the suture on the elytra. Differs from all other species in the *Acolastus callosus* species-group by the above mentioned characters

#### DESCRIPTION

Description of holotype (male): **Habitus**: body cylindrical, size [mm]: length 4.1, width of elytra at humeri 1.9, length of pronotum 1.2, width of pronotum 1.8.

**Head:** Strongly punctate, covered with white setae, cinnamon brown with two yellow spots on frons which are elevated, otherwise head without irregularities, clypeus and labrum yellow with apical margin brown, eyes convex, large, inner margin emarginate, ration length of eye: minimum distance between upper lobes of eyes 3.1: 2.2, i. e. interocular space 0.7 times eye length (Fig. 7), maxillary and labial palpi yellowish brown, last segment of maxillary palp expanded and darker at apex, mandibles simple, yellow; antennae filiform, long, surpassing basal margin of pronotum by 2.5 segments, antennal segments 2-4 light brown, segments 5-11 dilated, dark brown.

Thorax: In dorsal view, pronotum slightly narrowing towards apical margin, pronutum cinnamon brown, laterally yellow, pronotum pubescent with short white adherent setae, hind margin with longer setae, surface of pronotum matt, diffusely punctate on disk, puncturation very coarse and very dense, interstices elevated, lateral margins yellow, simple, not simultaneously visible from above, straight except for hind edges with tubercles bearing setae, basal margin notched opposite to shoulders; scutellum strongly punctate, covered with brownish setae; elytra truncate, glabrous, basal margin swollen, yellow, with acute, elevated tooth, humerus dark brown, with simple side margins, not simultaneously visible from above, punctures completely confused, elevated interstices narrower than diameter of punctures, with two complete carinae parallel to the side margin, and additional two abbreviated carinae, one close to scutellum ending shortly before mid of elytra, and the other one in between the complete carinae ending in apical third of elytra; apex of elytra regularly vaulted, epipleura short, with long white setae under shoulder; legs yellowish brown, fore tibia almost straight, fore femur wider than mid femur, femur yellow with light brown shade, fore tarsi simple, not wider than mid- and hind tarsi, first tarsomere of hind tarsi shorter than remaining segments combined, last tarsomere short, claws dark brown, large and simple.

**Abdomen:** Puncturation of sternites and pygidium dense and coarse, cinnamon brown, very densely covered with white setae. Apex of aedeagus S-shaped in lateral view, lateral margin of orificium bulked out (Fig. 3), apex of ventral prolongation of aedeagan lobe Y-shaped, orificium large, a dark-brown sclerite visible in dorsal view (Fig. 4), ventral side evenly rounded, length of aedeagus 1 mm.

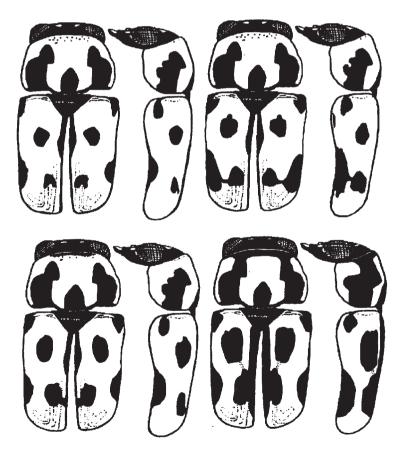
Female: not known.

#### ETYMOLOGY

The name refers to the species *A. carinatus* with similar colouration and surface structure of elytra, and *A. callosus* with similar general morphology and aedeagus.

#### DISTRIBUTION

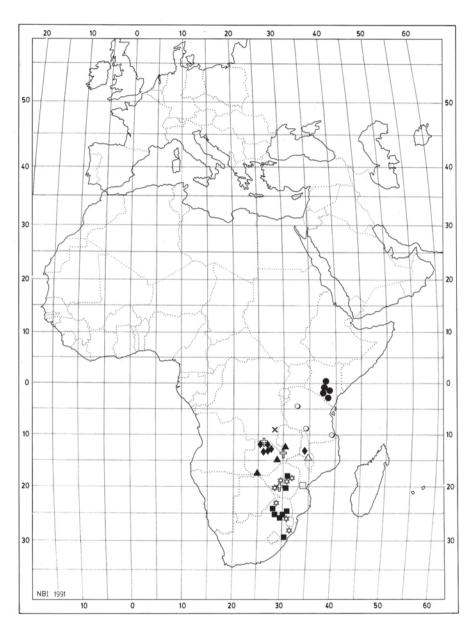
Malawi (Fig. 15). No information on the biology available.



14. Variability in colouration in Acolastus kantneri n. sp.

#### KEY TO THE CALLOSUS SPECIES-GROUP OF ACOLASTUS

1	Dorsum cinnamon-brown, elytra with two complete yellow carinae parallel to the suture, male with eyes large and close, i. e. interocular space 0.7 times eye
	length
	Dorsum yellow with black markings, elytra with one complete yellow carina
	parallel to the suture only, male with eyes usually smaller and less close, i. e.
	interocular space $\geq 0.9$ times eye length
2(1)	Elytra bearing six longitudinal black stripes, interocular space in female 1.6 times
-(-)	eye length
	Elytra bearing black points or transverse stripes, or black markings reduced 3.
3 (2)	Lateral margins of thorax narrow, but simultaneously visible from above. No pair
( )	of plate-like sclerites between the paired accessory structures of the internal sac
	of aedeagus
_	Lateral margins of thorax not simultaneously visible from above
4(3)	Ventral side brown, black markings on thorax M-shaped, interocular space 1.6
	and 1.0 times eye length in female and male, respectively
—	Ventral side black, interocular space in female 1.0 to 1.4 times eye length, if
	ventral side partly brown, interocular space 0.8 times eye length in male 5.
5(4)	
	in male ventral prolongation of aedeagan lobe in dorsal view laterally convex
—	Interocular space 1.0-1.2 and 0.8-1.0 times eye length in female and male, re-
	spectively, in male ventral prolongation of aedeagan lobe in dorsal view laterally
concave or straight 6.	
0(5)	Ventral side of the aedeagan lobe prolonged into an S-curved apex in lateral view,
	spermatheca less than 0.5 mm long
7(6)	Ventral side of the aedeagan lobe straight, spermatheca longer than 0.5 mm 7.  Tip of the prolongetion of the control side of the codeagan lobe round, with a
7(6)	Tip of the prolongation of the ventral side of the aedeagan lobe round, with a shallow depression, interocular space 1.2 times eye length in female
	Shahow depression, interocular space 1.2 times eye length in remaie
	Tip of the prolongation of the ventral side of the aedeagan lobe Y-shaped 8.
8(7)	Thorax on disk matt and rugulose, interocular space 1.0 and 0.8 times eye length
0(.)	in female and male
	Thorax on disk shiny and smooth, a pair of plate-like sclerites present between
	the paired accessory structures of the internal sac, spermathecal duct about 3 mm
	in length
9(8)	Larger, 4.2 mm (male) - 4.8 mm (female), pronotum widest at 2/3, sometimes
` '	ventral side partly brown
	Smaller, 3.5 mm (male) - 4.2 mm (female), pronotum widest at base, ventral
	side black



15. Records of the *callosus* species-group of the genus *Acolastus*. Black point = *A. pardalis* Schöller, 2000; white star = *A. personatus* Schöller, 2000; black square = *Acolastus pictus* Suffrian, 1857; black rhomb = *Acolastus kantneri* n. sp.; white triangle = *Acolastus callosocarinatus* n. sp.; white point = *Acolastus callosus* Gerstaecker, 1855; white cross = *Acolastus varioplagiatus* n. sp.; white square = *A. beirensis* Schöller, 2000; cross = *A. sexstriatus* Schöller, 2000; black triangle = *A. justi* Schöller, 2000

#### LECTOTYPE DESIGNATIONS

Due to formalities resulting from the last version of the code, I have to give valid lectotype designations for species discussed in detail in Schöller (2000).

### Acolastus nigroplagiatus JACOBY, 1898

Lectotype *Acolastus nigroplagiatus* Jacoby (male, MNHL): / 3422 (ink) [white] / Type H. T. (round) [white with red border] / Estcourt, Natal (ink) [white] / Jacoby Coll. 1909-28a. [white] / *Acolastus nigroplagiatus* Jac. Type (ink) [blue] / (my label) Lectotypus *Acolastus nigroplagiatus* Jacoby, 1898; designiert M. Schöller [red] / *Acolastus pictus* Suffrian, 1857; det. Matthias Schöller 1997 [white] /.

A lectotype was designated here in order to ensure the name's proper and consistent application.

#### Acolastus simonsi BALY, 1877

Lectotype *A. simonsi* Baly (female, MNHL): / Type H. T. (round label) [white with red border] / L. Nyaßa (ink) [white]/ Type (ink) [blue]/ *Acolastus Simonsi* Baly, Lake Nyaßa [blue] / Baly Coll. [white]/ (my label) Lectotypus *Acolastus simonsi* Baly, 1877; designiert M. Schöller [red] / *Acolastus callosus* Gerstäcker, 1855; det. M. Schöller VI 1997 [white] /.

A lectotype was designated here in order to ensure the name's proper and consistent application.

#### Thelyterotarsus fausti Weise, 1882

MNHB, female, Lectotype *Thelyterotarsus fausti* Weise: / Scharud, Christof, Faust (ink) [white] / Holotypus [red] / *Thelyterotarsus Fausti* \* (ink) [white] / (my label) Lectotypus *Thelyterotarsus fausti* Weise, 1882; designiert X 1997, Matthias Schöller [red] /.

A lectotype was designated here in order to ensure the name's proper and consistent application.

#### DISCUSSION

The records of the new species are within the known geographical distribution of the *Acolastus callosus* species-group. Now two species of *Acolastus* are known from Zambia, and three from Malawi.

Acolastus callosocarinatus n. sp. differs from all other species in the callosus species-group, and the diagnosis given for the group in Schöller (2000) has to be modified concerning the colouration: pronotum and elytra are yellow, bearing black spots or stripes, or pronotum and elytra are cinnamon-brown.

#### ACKNOWLEDGEMENTS

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#### REFERENCES

Schöller, M., 2000. The genus *Acolastus* Gerstaecker, with revision of the *A. callosus* species-group (Coleoptera: Chrysomelidae: Cryptocephalinae). Genus, Wrocław, 11: 541-571.